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LCEC Guidelines

on Preparing Technical Proposal
for Stone Cladding and Retaining
Wall Applications



Applies to LEA financing mechanism loans
Prepared by the Lebanese Center for Energy Conservation

Introduction:

The Lebanese Environmental Action (LEA) is a national financing mechanism dedicated to the financing of environmental loans for water, air and environment. LEA is a joint initiative between the Central Bank of Lebanon (BDL) and the Ministry of Energy and Water (MEW).

As part of the contract signed between BDL and LCEC under the name "Technical Support Consultancy Services Agreement in Energy Efficiency and Renewable Energy", the Technical Support Unit to the Central Bank of Lebanon (BDL) at LCEC is dedicated to offer BDL technical assistance to evaluate the eligibility of submitted loans under LEA.

Important Notes:

1. *This project proposal guideline is designed to help potential beneficiaries, consultants, and contractors in preparing comprehensive technical reports and proposals about reclaimed stone cladding applications.*
2. *This project proposal template is a mandatory requirement towards facilitating the green loan application process through the national financing mechanism LEA.*
3. *This project proposal template is prepared by the Lebanese Center for Energy Conservation- Technical Support Unit to the Central Bank of Lebanon, and is available for public use.*
4. *This guideline will be updated constantly, kindly always refer to the latest version (Latest version 1.2).*
5. *For questions, clarifications, or suggestions, please contact the LCEC: 01-569101 or by email: energy@lcec.org.lb*

Evaluation of projects requesting financing of stone cladding applications under LEA will be based on these issued Guidelines. Contractors are entailed to abide by the requirements set in these guidelines and must submit the technical reports following the steps and regulations clearly identified.

I- Introduction

Stone cladding application is part of the traditional Lebanese house architecture. Stone cladding reflects historical, cultural and religious aspects that have shaped the Lebanese environment. It will also minimize heating and cooling demand of a facility since it will act as a buffer isolation with the outside environment and thus reduce energy costs.

Exterior stone cladding is stone fixed to building walls, window frames, cornices and arches. Mortar is used as a binding paste to fix the building blocks such as stones and bricks to concrete the masonry units. It is also used to fill and seal the irregular gaps between them, and sometimes add decorative purposes in masonry walls.

Reclaimed stone could provide a “green” label to the facility, if the stone is from a recuperated source. Planning a stone cladding project with readily available stones reduces the need to harvest new materials, protects natural habitats and helps to sustain the environment for future generations.

II- Type of Stones

1. *Reclaimed Stones*

Reclaimed stone is stone that is recuperated from excavation and construction works either at the project site or from other nearby sources for cladding purposes instead of being left unused. This will allow natural resources to be used to their fullest extent while reducing the need of extracting, refining and processing raw materials. Using reclaimed stone will save energy and reduce GHG emissions, which will help to tackle climate change. In fact, using reclaimed materials in manufacturing process uses less energy than that required for producing new products from raw materials, even when comparing all associated costs including transport, etc.

2. *Quarried Stone*

Quarried stones are obtained from quarries or any blasting activities. A quarry is an open-air pit, from which stones, rocks, construction aggregates, sand, gravel or slate are excavated and extracted from the ground by cutting and blasting activities. Impacts associated with quarries are visual disturbance, damage to landscapes, loss of land and biodiversity, deterioration of water quality, air and noise pollution and quarry waste.

3. *Imported Stones*

Stone imported to Lebanon from a foreign country for trade or sale.

III- Stone Cladding

a. Applicability for LEA

Project proposals for stone cladding for exterior applications only are eligible for the LEA financing scheme.

Examples of the application could include covering building facades, sills, arches, cornices, external stairs, hard landscaping materials and covering retaining walls, etc. For more details about stone retaining walls requirements, kindly refer to section IV, Stone Retaining Walls.

b. Requirements under LEA

1. *Reclaimed Stone Cladding*

Reclaimed stone cladding for exterior applications is eligible for full financing under the LEA financing mechanism.

The reclaimed stone cladding measure within the project proposal submitted to the environmental loan under LEA should contain the following information:

- Source of stone with a certification letter from the supplier/contractor including plot number and coordinates of the site from which stone is recovered. Site visit by the technical unit of LCEC will be done to ensure the source of stone;
- Stone specification: geology, color, surface finish, dimensions and thickness;
- Cladding area location(s) (in m² and lm where needed), area covered for each location (area of each façade of the building or length of sills, etc.), and quantity used (in m³);
- Cladding process description and material and materials used (mortar, insulation, shelf angles, stone anchors, etc.);
- Pictures and architectural drawings as needed clearly showing dimensions and location(s) of application;
- Official BOQ from the supplier/contractor that should include:
 - a) Supplier/Contractor details;
 - b) Stone cost in USD/m², LBP/m², USD/lm, LBP/lm, USD/unit, LBP/unit as applicable;
 - c) Masonry cost;
 - d) Installation cost.

2. *Quarried Stone Cladding*

Quarried stone cladding for exterior applications is eligible for **partial** financing under the LEA financing mechanism. Only 60% of the total stone cladding amount requested will be financed if using quarried stones from local sources. Note that quarried stones used for sills, arches, cornices, external stairs, hard landscaping materials and covering retaining walls are not covered under the LEA financing mechanism.

The quarried stone cladding measure within the project proposal submitted to the environmental loan under LEA should contain the following information:

- Identification of source of stone (Arsali, Kour, Keserwan, etc.);
- Stone specification: geology, color, surface finish, dimensions and thickness;
- Cladding area location(s) (in m² and lm where needed), area covered for each location (area of each façade of the building or length of sills, etc.), and quantity used (in m³);
- Cladding process description and material and materials used (mortar, insulation, shelf angles, stone anchors, etc.);
- Pictures and architectural drawings as needed clearly showing dimensions and location(s) of application;
- Official BOQ from the supplier/contractor that should include:
 - a) Supplier details;
 - b) Stone cost in USD/m², LBP/m², USD/lm, LBP/lm, USD/unit, LBP/unit as applicable;
 - c) Masonry cost;
 - d) Installation cost.

3. *Imported Stone*

Imported stone is **not eligible** under the LEA financing mechanism and will not be financed.

N.B. The stone cladding can be improved by adding a thermal insulation especially if interior walls are not double or well insulated. Please refer to “LCEC Guideline on Preparing Technical Proposal for Non-Certified High Energy Performance Building” that can be found on the website. <http://lcec.org.lb/en/NEEREA/DownloadCenter/TemplatesGuidelinesMemos#page=2>

IV- Stone Retaining Walls

A retaining wall is a structure designed and constructed to resist the lateral pressure of soil, when there is a desired change in ground elevation that exceeds the angle of repose of the soil. Retaining Walls can be constructed from concrete, stone or even brick masonry.

a. Applicability for LEA

Project proposals for stone retaining walls using **reclaimed stones only** are eligible for LEA financing scheme. It is important to note that **only** the cost of reclaimed stone is financed and not the cost of the retaining wall construction, which might include concrete footing, foundation, slabs, etc.

b. Requirements under LEA

As mentioned above, only the cost of reclaimed stone used for the construction of the retaining wall is financed under the LEA financing mechanism.

The reclaimed stone retaining wall measure within the project proposal submitted to the environmental loan under LEA should contain the following information:

- Source of stone with a certification letter from the supplier/contractor including plot number and coordinates of the site from which stone is recovered. Site visit by the technical unit of LCEC will be done to ensure the source of stone;
- Stone specification: geology, color, surface finish, dimensions and thickness;
- Cladding area location(s) (in m² and lm where needed), area covered for each location (area of each façade of the building or length of sills, etc.), and quantity used (in m³);
- Cladding process description and material and materials used (mortar, insulation, shelf angles, stone anchors, etc.);
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 - a) Supplier/Contractor details;
 - b) Stone cost in USD/m², LBP/m², USD/lm, LBP/lm, USD/unit, LBP/unit as applicable;
 - c) Masonry cost;
 - d) Installation cost.